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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/761,417	01/22/2004	Toshihiko Omori	Q79515	3200

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SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER

KO, TONY

ART UNIT PAPER NUMBER

2878

DATE MAILED: 12/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/761,417

Applicant(s)

OMORI, TOSHIHIKO

Examiner

Tony Ko

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-16, 18 and 21 is/are rejected.
- 7) ☒ Claim(s) 7, 17, 19, 20, 22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 2, 4, 5, 7, 8-15, 17, 18 and 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Manni (US 2002/0196414).

3. Regarding claim Claims 1, 2, 4, 5, 7, 8-15, 17, 18 and 21, Manni discloses (Fig. 3) a light source (32); an optical integrator (22, 221, 222) to which light is supplied from the light source; and a two-dimensional spatial light modulator (26) illuminated by light which has transmitted the optical integrator, wherein the light source comprises an optical fiber bundle in which a plurality of optical fibers are arranged and light is emitted from the plurality of optical fibers (Paragraph [34]), and the configuration of a light-emitting area formed at an end portion of the optical fiber bundle is, as seen from the light emitting side, substantially similar to the contour configuration of the light-emitting surface of the optical integrator. Manni also discloses the optical integrator is a fly-eye type. Manni also discloses the two dimensional spatial light modulator is a digital micromirror (Paragraph [35]). Manni also discloses the two-dimensional spatial light modulator is disposed in a tilted manner so that a predetermined angle is formed by a direction of a side of the two-dimensional spatial light modulator and a main scanning

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direction for exposure (Paragraph [35]). Manni also discloses the light source portion comprises a laser diode (10). Manni also discloses the light source portion comprises a plurality of laser diodes, and each of the plurality of optical fibers is coupled to the plurality of laser diodes. Manni also discloses (Fig. 3) the light source portion comprises a plurality of laser diodes, and each of plurality of optical fibers is coupled to the plurality of laser diodes. Manni also discloses the light source portion comprises a broad area type laser diode array including a plurality of emitters (Paragraph [32]). Manni also disclose (Fig. 3) the light source comprises a non-uniform light distribution intensity light source (the light is non uniform between 26 and 29).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 6 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Manni.

6. Regarding claims 6 and 16, Manni discloses the invention set forth above. Manni does not disclose the predetermined angle is in the range of 0.1 degree and 1 degree. It is design choice to set the predetermined angle in the range of 0.1 degree and 1 degree. It would have been obvious to a person of ordinary skill in the art at the time of

the invention to set the predetermined angle in the range of 0.1 degree and 1 degree to achieve the desired spatial light coverage area.

7. Claims 3 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Manni in view of Koyama (US Patent 5949503A).

8. Regarding claims 3 and 10, Manni discloses the invention set forth above. Manni does not disclose the optical integrator is a rod type. Koyama discloses the use of a rod type integrator (Col. 14, Lines 55-65). It would have been obvious to a person of ordinary skill in the art at the time of the invention to use a rod type integrator to improve irradiance uniformity.

Allowable Subject Matter

9. Claims 7, 17, 19, 20 and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter: Prior art does not teach a diameter of at least one of a core and a clad of each of the plurality of optical fibers is changed depending on the number of the plurality of optical fibers. Prior art does not teach a diameter of at least one of a core and a clad of each of the plurality of optical fibers is changed depending on the number of the plurality of optical fibers. Prior art does not teach an etendue level of the light source is less than $80 \text{ mm}^2 \cdot \text{str}$ and an etendue of the light source is smaller than that of the two dimensional spatial light modulator.

Response to Arguments

11. Applicant's arguments filed 9/23/05 have been fully considered but they are not persuasive. Applicant argues the differences between applicant's invention and Manni's invention. However, applicant fails to recite the differences between the claim language and the Manni's invention. That is, applicant fails to include the novel part of the invention into the claim language.

12. Applicant further argues "In Manni, it is only necessary to combine emitted light from each light source." However, by simply combining emitted light from each light source does not achieve irradiance uniformity. Therefore, the Koyama teaching can be used to improve Manni's invention to improve irradiance uniformity.

13. Applicant further argues that Manni fails to teach the light modulator is disposed in a tilted manner. Figure 3 of Manni discloses the light modulator is tilted 90 degrees from the horizontal, which anticipates the claim language.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony Ko whose telephone number is 571-272-1926. The examiner can normally be reached on Monday-Friday 7:30 - 4:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on 571-272-2328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TKO


THANH X. LUU
PATENT EXAMINER